

## Kiplinger and Taylor named Los Alamos Stars



MPA-10's Jaqueline Kiplinger and MPA-CINT Group Leader Toni Taylor have been selected as 2007 Los Alamos National Laboratory Stars.

Presented by the Women's Diversity Working Group, the awards recognize women who go above and beyond the call of duty in the performance of their job functions, who have achieved scientific or technical success, or who make important contributions to the community.

Kiplinger came to Los Alamos in 1999 as the first Frederick Reines Distinguished postdoctoral fellow and is a technical staff member in MPA-10. An acknowledged expert in organometallic chemistry of actinides, Kiplinger has been invited to speak at prestigious conferences and universities and her work has been published in high profile publications—thus increasing the profile of Los Alamos actinide science. As a Laboratory scientific leader she has assembled and managed teams from across the Laboratory and has



**Toni Taylor**

worked to improve the climate for science by mentoring young scientists and serving on the Science Council.

Kiplinger was nominated by Eric Schelter, MPA-10, and Jackie Veauthier, C-IIAC, with input from Carol



**Jaqueline Kiplinger**

Burns, C-NR, and Tammy Taylor, NN.

Taylor, an internationally renowned scientist for her studies of fast optical processes in condensed matter and nanostructured materials systems, has established a recognized  
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### MPA newsmakers

## MPA-10's Park to receive Postdoctoral Distinguished Performance Award MPA-STC's Zhao recognized with honorable mention



**Tuson Park**



**Yonghao Zhao**

MPA-10's Tuson Park will receive one of two 2007 Postdoctoral Distinguished Performance Awards. The other recipient is Rolando Somma of P-21/T-13. The award recognizes individuals whose outstanding performance has made a significant contribution to the Laboratory. Both will be highlighted in an upcoming issue of the *Los Alamos NewsLetter*.

Park, who joined the Laboratory in 2003 is an Oppenheimer Postdoctoral Fellow and a recipient of this year's Outstanding Young Research Award from the Association of Korean Physicists in America. He has a doctorate in physics from the University of Illinois at Urbana-Champaign.

Also recognized with an honorable mention was MPA-STC's Yonghao Zhao. Zhao received his doctorate in 2001 from the Institute of Metal Research, Chinese Academy of Sciences.

## From John's desk

# Materials Physics and Applications: of travel, taxes, remaining vigilant

I recently had the opportunity to see a number of you at the American Physical Society March Meeting in Denver, and I'm looking forward to seeing more of you at the Materials Research Society Spring Meeting in San Francisco. Presenting our research to external peers and learning the latest developments in our fields is an important part of our work. In this context, I'd like to discuss a recent change in procedure related to conference travel—we've raised the required approval to the Associate Director level. This is meant to ensure that the travel we do is appropriate and reasonable; it is not meant to be a quota or an arbitrary cap on the number of travelers going to a given conference nor a limit on the number of conferences in which an individual can participate. Having discussed this thoroughly with Susan Seestrom, I'm confident that if I would have approved the trip before, she will approve it now.

I do want to reiterate that you need prior approval for conference travel and I want to strongly encourage you to plan ahead—the same trip can have a vastly different cost depending on the extent to which individuals plan ahead. Your group leaders and I are developing some division-wide guidance and suggestions

to help minimize travel costs so that we can all continue to travel as frequently as necessary even in the face of limited Laboratory budgets. A good example of this is the recent van-/carpooling efforts to Denver for the March Meeting, which I very much appreciate.

For a number of our programs, there's some very good news related to the cost of doing business (that does have a bureaucratic consequence). The Laboratory has implemented a new "Non-National Security" G&A tax rate that is 3.5 percentage points lower than the rate at which G&A had previously been collected (retroactive to January 1, 2007). This discount applies to the vast majority of non-NNSA/DOD sponsors for work that does not rely essentially on our nuclear facility infrastructure. It is also an explicit attempt to lower costs for these sponsors in order to promote program growth, paid for in large measure by a significant restructuring of the program offices that support this work. In order to implement this change, a number of our program codes need to be redefined. While this may create some confusion in the short term and a fair number of cost corrections for the group offices to implement, the greater than \$1 million it will save us this year is well worth it. This is also a good opportunity for all of us to remind ourselves of the set of program codes to which we charge our time and the milestones to which we are working within these programs.

Finally, I'd like to mention two recent incidents related to plutonium glove box



work and their broader implications for the work we do. In both cases, workers received contamination and dose as a result of punctured glove box gloves. Relatively few of us do this particular kind of work (and we've already reviewed glove box operations in MPA), so the topic I'd like to discuss here is somewhat broader—how do we know that work is well supervised and sufficient "fresh eyes" are being utilized to ensure potential risks are not being missed. To be clear, the answer is certainly NOT more paperwork. Rather, your group leaders have identified several things that we're currently doing that should be re-emphasized:

- **Know** who the person-in-charge (PIC) is for a given operation at all times and ensure that he/she knows this as well.
- **Emphasize**, from the very beginning, peer review—both in formal walk-arounds and informal interactions.
- **Spend** more time walking around, and when we do management walk-arounds, watch workers work, don't just talk about paperwork or facility issues.
- **Observe** the work that your colleagues perform, and if it doesn't "look right," say something (constructively). When it does look right, point that out, too.
- **Be** receptive to feedback—our goal is a culture of constructive feedback based on mutual trust. Catching small things and making minor suggestions are a very good way of reducing the risk of large incidents.

If you have additional suggestions along these lines, please share them both with me and with your colleagues.

—MPA Division Leader John Sarrao

## Materials Physics and Applications

### material matters

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To read past issues of MPA Material Matters see [www.lanl.gov/orgs/mpa/materialmatters.shtml](http://www.lanl.gov/orgs/mpa/materialmatters.shtml)



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was a benefits coordinator for the Pueblo of Sandia. She is a Certified Professional in Human Resources by the Human Resources Certification Institute and earned her Senior Professional in Human Resources designation in 2005.

Perret lives in Rio Rancho and in her spare time enjoys going for walks with her husband Bill and their dog Pierre, a standard poodle, and is teaching herself to paint.



## Project kickoff meeting for advanced cathode catalysis held in Los Alamos

A kickoff meeting for the competitively awarded Advanced Cathode Catalysis Task led by Piotr Zelenay of MPA-11 was held in the Los Alamos Research Park in January. The purpose of the meeting was to share each partners approach to the very challenging problem of cathode electrocatalysis in low-temperature polymer electrolyte fuel cells using little or no platinum-group metals.

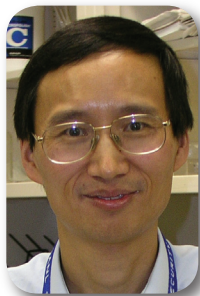
Participants in the Los Alamos-led collaboration included Nancy Garland, U.S. Department of Energy, Debbie Myers, Argonne National Laboratory, Radoslav Adzic, Brookhaven National Laboratory, Gordon Rice and Yipeng Sung, Cabot Fuel Cells, Zhongwei Chen and Yushan Yan, University of California Riverside, Andrzej Wieckowski, University of Illinois Urbana-Champaign, Plamen Atanasov,

University of New Mexico, and Los Alamos National Laboratory researchers from MPA-11 and MST-8. This four-year \$6.8M project was presented to the U.S. fuel cell community in a program coordination meeting in Washington, DC.

The work is sponsored by the DOE Office of Hydrogen, Fuel Cells and Infrastructure Technologies, part of Office of Energy Efficiency and Renewable Energy.

## MPA-STC's Zhu appointed to editorial board of *Materials Science and Engineering A*

MPA-STC's Yuntian Zhu has been appointed to the editorial board of the journal *Materials Science and Engineering A*. His responsibilities will include reviewing articles and providing editorial advice. Zhu was also recently invited to serve on the advisory board of *Advanced Engineering Materials*, offering his insights into the growing field of nanocrystalline materials. AEM is the society journal of the European Materials Research Society. Zhu also serves on the editorial board of the *Journal of Materials Science* where he edits special issues focusing on nanomaterials, the first of which is to be published this spring.



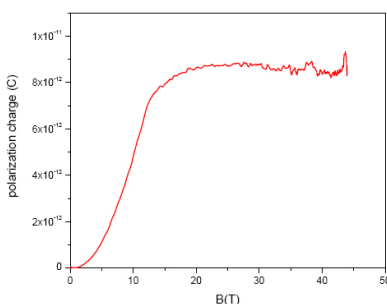
Yuntian Zhu

## NHMFL research leads to new charge measurement technique in pulse fields

MPA-NHMFL's Fedor Balakirev has successfully designed and implemented a new technique to measure field-induced polarization charge in pulsed fields with a sensitivity as low as ~100 femto Coulombs.

The technique is based on detecting the sample polarization current with a sensitive high-gain current amplifier. The resulting voltage is then recorded using a fast high-resolution digitizer as the magnet is pulsed. To obtain the polarization charge induced by the magnetic field researchers perform digital integration of the recorded voltage trace using the existing capabilities in standard Pulse Data Acquisition software.

Digital integration allows problems typically associated with analog integrators, such as signal drift and low bandwidth to be overcome. The new charge measurement technique is available to NHMFL users. The work at NHMFL was supported by the National Science Foundation and the Department of Energy.



Above, polarization charge induced by high magnetic field in multiferroic material due to coupling of ferroelectric and ferromagnetic interactions.

## MPA-10 team develops MRFM apparatus with unique temperature regulation capability

Magnetic resonance force microscopy (MRFM) is a hybrid between conventional magnetic resonance and cantilever-based scanning probes, utilizing an extreme sensitivity of cantilevers to drastically decrease the strength of a detectable signal.

Recently, MRFM was used to detect a force signal originating from a single electron spin. It provides three dimensional imaging, excellent spatial resolution, and has been successfully used for detection of nuclear magnetic resonance (NMR), electron spin resonance (ESR) and ferromagnetic resonance (FMR) signals.

At Los Alamos, MPA-10's Evgueni Nazaretski and Roman Movshovich have developed an MRFM apparatus with unique temperature regulation capability between 4 and 100 K and in magnetic fields up to 6 T. The microscope allows three-dimensional scanning in the range of 6x6x6 mm with the nm-scale resolution and the force sensitivity of a few thousand electron spins.

Substitution of a commercially available MFM cantilever for the MRFM cantilever will allow low temperature characterization of the static magnetization in the same apparatus.

Recent experiments on a 200 nm-thick film of multiferroic TbMnO<sub>3</sub> detected the resonance signal of Mn ions with the sensitivity at least seven orders of magnitude higher than that of conventional ESR methods, demonstrating MRFM utility as a tool of choice for studying dynamic magnetic properties of thin multiferroic films.

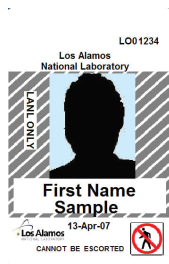
The MRFM project is being funded by the LDRD office, both through Nazaretski's Director's-funded Postdoctoral Fellowship and through an ER headed by Movshovich.

# Heads UP, MPA!



## Non-escortable gray badge holders

The Laboratory now has an additional badge that clearly identifies personnel who do not have authority, under any circumstance, to be allowed escorted access into Los Alamos National Laboratory security areas. The new badge is similar to the existing uncleared gray badge but contains additional text and a symbol along the bottom.



If you are intending to, or are asked to, escort a gray badge holder that possesses the non-escortable gray badge, kindly refuse to do so. That person is not allowed into any LANL security area—no exceptions. If you have escort duties, please take note.

## Prevent theft of Laboratory property

Theft of government property is a serious matter. An employee who steals LANL property is subject to termination and in many cases arrest. You can turn situations like these around by not engaging in such behavior and by taking part to help prevent such events from occurring.

All employees are held accountable for the property they use at LANL; whether it is a computer, printer, palm pilot, tools, building materials, etc, you are responsible for the

items in your possession. Some of these items can hold information—classified or unclassified controlled information—which, if stolen, can add to an already serious matter.

If any property belonging to you is stolen or if you are suspicious of another employee who may be involved with the theft of LANL property, you must report it.

For signs of potential theft, tips on preventing theft, and what to do if you suspect someone is stealing LANL property, see the Security Smart at <http://int.lanl.gov/security/documents/security-smart/security0207.pdf>.

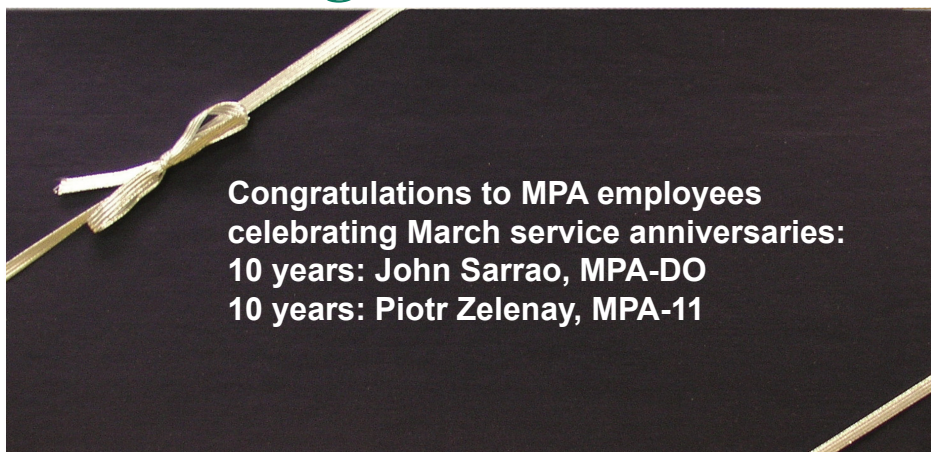
## New access requirements for the NSSB

The National Security Sciences Building at Technical Area 3 is now a Q-cleared-only Limited Security Area, which allows unescorted access for Q-cleared personnel only. L-cleared and uncleared personnel now require escorts. Except for the lobby of the NSSB in which the coffee kiosk is located, the escorting requirement for L-cleared personnel applies to the entire building and to the auditorium for all events.

A Security Smart, [http://int.lanl.gov/security/documents/security-smart/nssb\\_0307.pdf](http://int.lanl.gov/security/documents/security-smart/nssb_0307.pdf), provides information on the new access requirements and escorting procedures.

*Heads UP, MPA! reports on environment, safety, and health, security, and facility-related news and information.*

## Celebrating service



**Congratulations to MPA employees celebrating March service anniversaries:**  
**10 years: John Sarrao, MPA-DO**  
**10 years: Piotr Zelenay, MPA-11**

## "Stars" Continued from page 1

effort in this area at Los Alamos, drawing many high-profile scientists here to collaborate. As Associate Director of the Center for Integrated Nanotechnologies, Taylor has worked effectively with her Sandia counterparts to start this new and highly visible DOE nanoscience center. She is a fellow of the American Physical Society, the American Association for the Advancement of Science, and the Optical Society of America. She currently chairs a National Academy of Sciences study panel on nanophotonics, is a member of the National Academies Solid State Sciences Committee, is past chair of the American Physical Society Marie Goeppert-Mayer Award Committee (which recognizes outstanding women in physics), and a recent Director at Large for the Optical Society of America. She has more than 200 peer reviewed journal articles, two book chapters, and two edited books.

Taylor was nominated by Tom Picraux, MPA-CINT, and John Sarrao, MPA-DO.

This year's Stars will be recognized as part of March's Women's History Month.

## Who's new

Bunny Perret is MPA's new human resources generalist. She has been with the Laboratory as an HR generalist since September 2005 and previously worked with Physics Division. She also worked with an HR team on employee concerns related to the transition to Los Alamos National Security.

Perret began her career in human resources in 1989 working as a generalist for a wholesale electric utility in Albuquerque, where she managed the compensation and staffing programs. She has also consulted in compensation for Cricket Communications, worked with staffing at Intel, and

*"New" continued on page 2*



**Bunny Perret**